

## REMARKS

This Response is submitted in reply to the non-final Office Action mailed on June 25, 2008. The Director is authorized to charge any other fees that may be required, or to credit any overpayment to Deposit Account No. 02-1818. If such a withdrawal is made, please indicate the Attorney Docket No. 112701-734 on the account statement.

Claims 1-14 are pending. In the Office Action, Claims 1, 3, 5-10 and 14 are rejected under 35 U.S.C. §102, Claims 1-2 are rejected under 35 U.S.C. §103 and Claims 4 and 11-13 are objected to. In response, Applicants amend Claim 1, cancel Claims 4 and 11-13, and add new Claims 15-18. The amendments and new claims do not add new matter. In view of the amendments and for at least the reasons set forth below, Applicants respectfully submit that the rejections and objections should be withdrawn.

In the Office Action, Claims 4 and 11-13 are objected to but would be allowable if rewritten in independent form including all the limitations of the base claim and any intervening claims. See, Office Action, page 2, lines 6-8. In response, Applicants have canceled Claims 4 and 11-13 and have added new claims 15-18 that are Claims 4 and 11-13 rewritten in independent form to include all the limitations of the base claim (Claim 1) and any intervening claims. New Claims 17 and 18 specifically include all the limitations of independent Claim 1 and dependent Claim 4 (intervening claim). Therefore, Applicants submit that, per Examiner's statements, new Claims 15-18 are allowable.

In the Office Action, Examiner states that should Claim 1 be found allowable, Claim 14 will be objected to under 37 C.F.R. 1.75 as being a substantial duplicate thereof. Applicants respectfully disagree. Though Examiner states that Claims 1 and 14 are duplicates or else are so close in content that they both cover the same thing, the claims are clearly distinguishable. For example, while Claim 1 generally recites "at least one means" for introducing single large gas bubbles, Claim 14 specifically recites "an inlet" for allowing a single gas bubble. Moreover, Claim 1 recites the positive "introducing" of gas bubbles, while Claim 14 recites "allowing" a gas bubble "to be received." Therefore, Applicants respectfully submit that Claims 1 and 14 are sufficiently distinguishable and should not be objected to under 37 C.F.R. 1.75.

In the Office Action, Claims 1, 3, 5-10 and 14 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,649,117 to Familletti ("*Familletti*"). Also in the Office

Action, Claims 1 and 2 are rejected under 35 U.S.C. §103(a) as being unpatentable over *Familletti*. Independent Claims 1, 8, 9 and 14 recite, in part, a bioreactor for culturing living cells in a liquid culture medium comprising single bubbles having a width from 50 to 99% of the tank width. Applicants respectfully submit that *Familletti* fails to disclose or suggest every element of the present claims.

*Familletti* fails to disclose or suggest single bubbles having a width from 50 to 99% of the tank width as required, in part, by independent Claims 1, 8, 9 and 14. In fact, *Familletti* fails to disclose or suggest any width of the bubbles introduced through gas inlet line 12. *Familletti* even fails to illustrate bubbles in Figures 1 or 2, which illustrate the embodiments of *Familletti*.

The Office Action asserts, however, that *Familletti* teaches a bioreactor comprising a gas inlet at the bottom which releases one single large bubble at a time, with the bubble being clearly more than half the diameter of the tapered portion of the lower portions of the bioreactor. See, Office Action, page 3, lines 18-20. Applicants respectfully disagree and note that *Familletti* refers to the circles in the tank as culture cells, not air bubbles. Specifically, *Familletti* states, "As the gas rises through the fermentation of culture medium 14 contained within the chambers it displaces liquid in the lower portion of chamber 11 and carries cells, designated by the small circles 15, upward as indicated by the upward pointing arrows" (emphasis added). See, *Familletti*, column 2, lines 6-10.

Further, even assuming that elements 15 in Figure 1 indeed are air bubbles, Applicants disagree with the Office Action's assertion that the bubbles are clearly more than half the diameter of the tapered portion of the lower portions of the bioreactor. Instead, even in the lower tapered portion 11 of the tank in *Familletti*, the bubbles have, at best, a width 40% of the tank width. The Office Action further asserts that *Familletti* teaches that the disclosed bioreactor could be scaled up. However, *Familletti* also teaches that the diameters of the lower and upper chambers must be scaled up proportionally. See, *Familletti*, column 2, lines 31-37. *Familletti* does not teach anything regarding the corresponding scale up of the gas inlet line 12. Therefore, in the absence of information to the contrary, the gas inlet line at best can only scale up proportionally to the increased dimensions of the lower and upper chambers. As a result, even if elements 15 are air bubbles and the bioreactor is scaled up, *Familletti* still fails to disclose or

suggest single bubbles having a width from 50 to 99% of the tank width as required, in part, by the present claims.

Therefore, *Familletti* is clearly deficient with respect to Claims 1, 3, 5-10 and 14. Moreover, Applicants submit that the patentability of Claim 1 established above renders moot the obviousness rejection of Claims 1 and 2.

Accordingly, because *Familletti* is deficient with respect to the present claims, Applicants respectfully request that the obviousness and anticipation rejections be withdrawn.

For the foregoing reasons, Applicants respectfully request reconsideration of the above-identified patent application and earnestly solicit an early allowance of same.

Respectfully submitted,

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